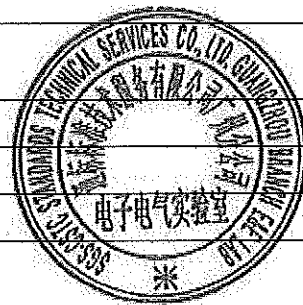


Test Report issued under the responsibility of:

SGS

TEST REPORT IEC 62560 Self-Ballasted LED-Lamp for general lighting services by voltage > 50V Safety specifications	
Report Number. :	GZES131201239201
Date of issue..... :	2014-01-20
Total number of pages	19
Applicant's name..... :	Shenzhen Betop Electronics Co., Ltd.
Address	Building C-D, Yisong Ecological Science and Technology Park, Jiejiaobao Road No. 9, Shiyan Town, Bao'an, Shenzhen, Guangdong, China
CB/CCA Testing Laboratory	SGS-CSTC Standards Technical Services Co., Ltd. - E&E Lab Guangzhou
Address	198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District, Guangzhou, 510663 Guangdong, China
Test specification:	
Standard	IEC 62560:2011 (1 st Edition)
Test procedure	CE/LVD
Non-standard test method.....	N/A
Test Report Form No..... :	IEC62560A
Test Report Form(s) Originator	DEKRA Certification B.V.
Master TRF.....	Dated 2011-04
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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
Test item description	GU10 Self-Ballasted LED-Lamp
Trade Mark	—
Manufacturer	Same as applicant
Model/Type reference	BT-ECO5W, BT-ECO6W
Ratings	230 V; 50 Hz / 60 Hz; BT-ECO5W: 25 mA; 5 W; BT-ECO6W: 30 mA; 6 W

Testing procedure and testing location:	
☒ CB Testing Laboratory:	Refer to page 1
Testing location/ address	Refer to page 1
☐ Associated CB Laboratory:	
Testing location/ address	
Tested by (name + signature)	Dashen Xiao
Approved by (name + signature)	Alex Tan
☐ Testing procedure: TMP	
Testing location/ address	
Tested by (name + signature)	
Approved by (name + signature)	
☐ Testing procedure: WMT	
Testing location/ address	
Tested by (name + signature)	
Witnessed by (name + signature)	
Approved by (name + signature)	
☐ Testing procedure: SMT	
Testing location/ address	
Tested by (name + signature)	
Approved by (name + signature)	
Supervised by (name + signature)	
☐ Testing procedure: RMT	
Testing location/ address	
Tested by (name + signature)	
Approved by (name + signature)	
Supervised by (name + signature)	



List of Attachments (including a total number of pages in each attachment):

Attachment 1: Thermal test for IEC 60598-1 (1 page);

Attachment 2: IEC/EN 62493 (total 1 page);

Attachment 3: Circuit diagram and PCB layout (1 page);

Attachment 4: Photo documentation (3 pages).

Summary of testing:

1. The submitted samples are in compliance with EN 62560: 2012. Clause 12.4 of EN 60598-1 was also considered.
2. Safety of LED has been judged and belongs to Low Risk Group according to standard EN 62471: 2008.
3. EN 62493: 2010 were considered and passed.
4. Both models have the similar construction, mainly different in the power, BT-ECO6W was chosen for full test, since its power is bigger than BT-ECO5W's.

Tests performed (name of test and test clause):

Clause 5 Marking;
 Clause 6 Interchangeability;
 Clause 7 Protection against accidental contact with live parts;
 Clause 8 Insulation resistance and electric strength after humidity treatment
 Clause 9 Mechanical strength
 Clause 10 Cap temperature rise
 Clause 11 Resistance to heat
 Clause 12 Resistance to flame and ignition
 Clause 13 Fault conditions
 Clause 14 Creepage distances and clearances

Testing location:

Refer to page 1

Summary of compliance with National Differences

CENELEC common modifications.

☒ The product fulfils the requirements of EN 62560: 2012.

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

ShenZhen Betop Electronics Co., Ltd

BT - ECO6W GU10
AC230V 6W 30mA 50Hz/60Hz



ShenZhen Betop Electronics Co., Ltd

BT - ECO5W GU10
AC230V 5W 25mA 50Hz/60Hz



Location: the marking is printed on the enclosure.

Test item particulars.....:	
Equipment mobility.....:	—
Class of equipment.....:	—
Degree of protection	—
Mass of the equipment.....:	Max. 0,062 kg (BT-ECO6W)
Supply construction.....:	GU10 lamp cap
Possible test case verdicts:	
- test case does not apply to the test object.....: N/A	
- test object does meet the requirement.....: P (Pass)	
- test object does not meet the requirement	
: F (Fail)	
Testing.....:	
Date of receipt of test item.....:	2013-12-10
Date (s) of performance of tests	2013-12-10 to 2013-12-31
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Clause numbers between brackets refer to clauses in IEC 61347-1. When determining the test conclusion, the Measurement Uncertainty of test has been considered. Throughout this report a ☒ comma / ☐ point is used as the decimal separator. This document is issued by the company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated: (a) the results shown in this document refer only to the sample(s) tested and (b) such sample(s) are retained for 12 months. This document cannot be reproduced except in full, without prior approval of the company.	

Manufacturer's Declaration per sub-clause 6.2.5 of IEC60335-1:

The application for obtaining a CB Test Certificate ☐ Yes
includes more than one factory location and a ☒ Not applicable
declaration from the Manufacturer stating that the
sample(s) submitted for evaluation is (are)
representative of the products from each factory
has been provided

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) : Same as applicant

General product information:

Self-ballasted LED lamps, integrated with GU10 lamp cap, non-SELV operated LED module, not suitable for dimming.
BT-ECO5W & BT-ECO6W have the similar construction, mainly different in enclosure material and power.

IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict

4	GENERAL REQUIREMENTS		
4.1	The lamp shall be so designed and constructed that in normal use cause no danger to the user.		P
4.2	Self-ballasted LED-Lamp are non-repairable.		P

5	MARKING		
5.1	Mandatory marking		P
	- mark of origin		P
	- rated supply voltage (V): 230		P
	- rated wattage (W): Refer to ratings column in page 1		P
	- rated frequency (Hz): 50 / 60		P
5.2	Addition marking		P
	- burning position		N/A
	- rated current (A): Refer to ratings column in page 1		P
	- weight significantly higher		P
	- special conditions or restrictions		P
	- eye protection	Low risk group at retinal blue light hazard	N/A
5.3	Marking durable and legible		P
	rubbing 15 s water, 15 s petroleum; marking legible		P

6	INTERCHANGEABILITY		
6.1	Cap interchangeability in accordance with IEC 60061-1		P
	Gauge in accordance with IEC 60061-3		P
6.2	Bending moment		P
	Bending moment imparted by the lamp at the lampholder		P

7	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		
	Internal, basic insulated or live metal parts not accessible		P
	Tested with a test finger with a force of 10 N		P
	Compliance checked with appropriate gauges		P

IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict

8	INSULATION RESISTANCE AND ELECTRIC STRENGTH		
8.2	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	≥ 4 MΩ for double or reinforced insulation.....:	> 5,2 MΩ	P
8.3	Immediately after clause 8.2 electric strength test for 1 min		P
	Double or reinforced insulation, 4U + 2000 V	2920 V	P
	No flashover or breakdown		P

9	MECHANICAL STRENGTH		
	Torsion resistance of unused lamps		N/A
9.1	Torque test		N/A
	B 15 d Cap 1,15 Nm		N/A
	B 22 d Cap 3,0 Nm		N/A
	E 11 Cap 0,8 Nm		N/A
	E 12 Cap 0,8 Nm		N/A
	E 14 Cap 1,15 Nm		N/A
	E 17 Cap 1,5 Nm		N/A
	E 26 or E27 Cap..... 3,0 Nm		N/A
	GX 53 Cap 3,0 Nm	under consideration	N/A
9.2	Torsion resistance of lamps after a defined time of usage		N/A
	Torsion resistance of used lamp	under consideration.	N/A
9.3	Repetition of clause 8		N/A
	Clause 8 shall comply after the mechanical strength test.		N/A

10	CAP TEMPERATURE RISE		
	The cap temperature rise Δt_s of the lamp shall not exceed 120 K.	BT-ECO6W: 12,1 K	P

11	RESISTANCE TO HEAT		
	Parts of insulating material retaining live parts in position, ball-pressure test:		P
	- part; test temperature (°C)	Transparent reflector; 80	P
	- part; test temperature (°C)	White plastic in LED compartment; 125	P
	- part; test temperature (°C)	Plastic in lamp cap; 125	P

IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict
	- part; test temperature (°C)	PCB; 125	P

12	RESISTANCE TO FLAME AND IGNITION		
	External parts of insulating material preventing electric shock glow-wire test 650 °C	Transparent reflector; white plastic in LED compartment; plastic in lamp cap; PCB; Bobbin; insulating tape wrapping PCB; insulating film under LED	P
	- flame extinguished within 30 s		P
	- no flaming drops igniting tissue paper		P

13	FAULT CONDITIONS		
13.2	Extreme electrical conditions (dimmable lamps)		N/A
	Lamp withstands overpower condition >15 min.		N/A
	Lamp fails safe after 15 min overpower condition		N/A
	Lamp with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
13.3	Extreme electrical conditions (non-dimmable lamps)		P
	Tested according 13.2 (as far as possible)		P
13.4	Short-circuit across capacitors	(see appended table)	P
13.5	Fault conditions: where diagram indicates fault condition impairs safety, electronic components have been short-circuited or disconnected	(see appended table)	P
13.6	When operated under fault conditions the lamp		P
	- does not emit flames or molten material		P
	- does not produce flammable gases or smoke		P
	- live parts not accessible		P
	After the tests the insulation resistance with d.c. 1000 V complies with requirements of Cl. 8.1	> 5,2 MΩ	P

14 (16)	CREEPAGE DISTANCES AND CLEARANCES		
	Creep age distances and clearances according to Table 3 and 4 of IEC 61347-1, as appropriate	(see appended table)	P
	Printed boards see clause 14 of IEC 61347-1		P
	Insulating lining of metallic enclosures		P

IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict

13	TABLE: tests of fault conditions		P
Part	Simulated fault	Result	Hazard
BD1	Short circuit	Fuse resistor break down	NO
BD1	Open circuit	Light off	NO
D1	Short circuit	Circuit protected	NO
D2	Short circuit	Fuse resistor break down	NO
U1	Short circuit	Fuse resistor break down	NO
C7	Short circuit	Circuit protected	NO

IEC 62560			
Clause	Requirement + Test	Result - Remark	Verdict

11	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm):		Limit: 2,0	—
Part	Test temperature (°C)	Impression diameter (mm)	
Transparent reflector	80	0,4	
White plastic in LED compartment	125	0,5	
Plastic in lamp cap	125	0,6	
PCB	125	0,8	
Supplementary information:—			

14(16)	TABLE: Clearance And Creep age Distance Measurements					P
clearance cl and creep age distance decry at/of:	Up (V)	U rams. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Minimum distances between live parts of different polarity	325	230	1,5	> 2,0	2,5	> 3,3
Minimum distances between live parts and accessible parts	325	230	3	6,0	5	6,0
Supplementary information: —						

Attachment 2: IEC/EN 62493			
Clause	Requirement + Test	Result - Remark	Verdict

4.2	APPLICATION OF LIMITS (Test summary)		
	Specific absorption rate (SAR)		P
a)	CISPR 15 clause 4.3.1 Disturbance voltage mains terminals 20 kHz – 30 MHz		P
b)	CISPR 15 clause 4.4 Radiated electromagnetic disturbances 100 kHz – 30 MHz		P
c)	CISPR 15 clause 4.4.2 Radiated electromagnetic disturbances 30 MHz – 300 MHz		P
	Induced current density		P
d)	Induced current density 20 kHz – 10 MHz		P

Attachment 4: Photo documentation

Details of:

General view

BT-ECO6W

BT-ECO5W

View:

☒ general

☐ front

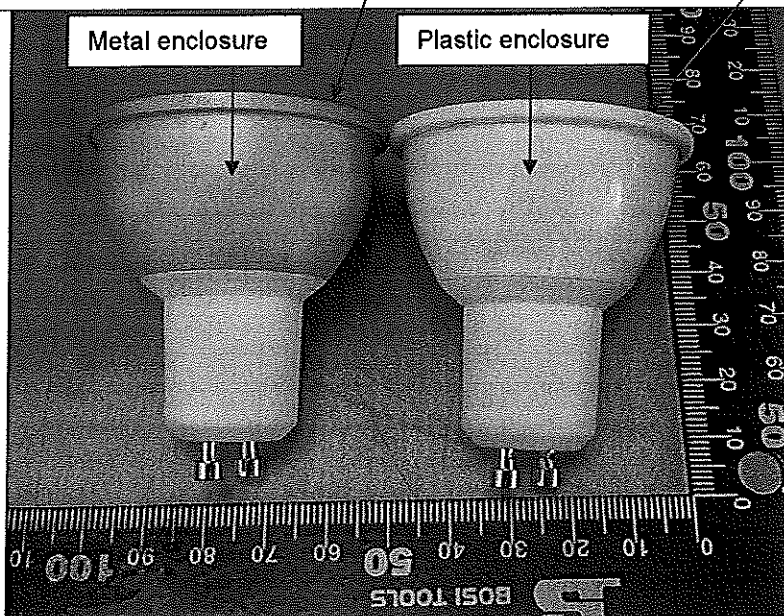
☐ rear

☐ right

☐ left

☐ top

☐ bottom



Details of:

Internal view of LED compartment of BT-ECO5W

View:

☒ general

☐ front

☐ rear

☐ right

☐ left

☐ top

☐ bottom

